UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,835	08/24/2006	Masanori Ogawa	2710/76787	1492

23432 7590 01/21/2009

COOPER & DUNHAM, LLP
30 Rockefeller Plaza
20th Floor
NEW YORK, NY 10112

EXAMINER
CHOI, PETER Y

ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
01/21/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,835	OGAWA ET AL.	
	Examiner	Art Unit	
	PETER Y. CHOI	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5 and 16-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, 5, and 16-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 16-19 and 21-26 are rejected under 35 U.S.C. 103(a) as obvious over WO 02/038374 to Ogawa (the translation presented as US Pub. No. 2004/0100125 to Ogawa) in view of USPN 6,291,068 to Wang.

Regarding claims 1, 16-19, 21-23, and 25, Ogawa teaches a fire resistant fiber sheet which is press-molded with heating, the fiber sheet consisting of a fiber sheet in which fire retardant capsules, consisting of a fire retardant powder are added, wherein the fiber sheet comprises a fiber having a low melting point of below 180°C and the fiber sheet is bound with a sulfomethylated and/or sulfimethylated phenolic resin which is added to the fiber sheet in an amount of between 5 and 200% by mass relative to the mass of the fiber sheet without the capsules (see entire document including paragraphs 0001-0003, 0013-0019, 0024-0031, 0035-0040, 0052, Examples 1 and 2, Claims 1-7). It should be noted that Applicants' specification at page 6 teaches that fibers such as polyethylene fiber, polyester fiber, polyamide fiber, and polyvinyl chloride fiber have a low melting point of below 180°C.

Regarding claims 1, 16-19, 21-23, and 25, Ogawa does not appear to teach that the fire retardant capsules consist of a water soluble fire retardant powder covered with a water insoluble synthetic resin shell. However, Ogawa teaches the inclusion of a powder such as a fire retardant

or an antiflame agent to the sulfomethylated or sulfimethylated phenolic resin (Ogawa, paragraph 0031). Since Ogawa is silent in regards to the fire retardant, it would have been necessary and therefore obvious to look to the prior art for conventional fire retardant compositions added to molded articles. Wang provides this conventional teaching, showing that it was known in the molded article art to incorporate a thermoplastic resin-coated ammonium polyphosphate flame retardant comprising a core material encapsulated by a water insoluble resin (Wang, column 1 line 7 to column 2 line 56, column 4 line 58 to column 6 line 50, column 7 lines 23-33, column 9 lines 28-58, column 15 line 45 to column 16 line 20). Wang teaches that the core material is water-soluble or can be made hardly water-soluble. Wang teaches that the thermoplastic resin-coated ammonium polyphosphate flame retardant is excellent in water resistance, resistance to organic solvents and chemical resistance, and has a high affinity for thermoplastic resins. Additionally, when incorporated into a thermosetting resin or thermoplastic resin-based molding material, the flame retardant has a high hygroscopicity-controlling effect. It would have been obvious to one of ordinary skill in the molded articles art at the time the invention was made to form the fiber sheet of Ogawa, wherein the fire retardant comprises the flame retardant, as taught by Wang, motivated by the desire of forming a conventional fiber sheet with a fire retardant known in the art to be predictably suitable for use in molded articles since the flame retardant is excellent in water resistance, resistance to organic solvents and chemical resistance, and has a high affinity for thermoplastic resins in addition to providing a high hygroscopicity-controlling effect.

Regarding claims 1, 16-19, 21-23, and 25, the prior art does not appear to specifically teach that the fire retardant capsules are fixed in the fiber sheet by the fiber having a low melting

point during press molding with heating. However, it is reasonable for one of ordinary skill in the molded articles art to presume that the fire retardant capsules are fixed in the fiber sheet by the fiber having a low melting point during press molding with heating. Ogawa teaches that the sulfomethylated and/or sulfimethylated phenolic resin is modified or mixed with a fire retardant. Additionally, Wang teaches that the thermoplastic resin-coated flame retardant has a high affinity for thermoplastic resins. Additionally, Ogawa teaches that the fire resistant fiber sheet and interior material is molded by hot-pressing after heating or the like, before, when or after the synthetic resin impregnated nonwoven fabric is bonded to the base material (Ogawa, paragraph 0040). Ogawa teaches that the nonwoven fabric may be attached then molded at 180°C for 60 seconds (Ogawa, Example 1) which appears to be substantially similar to the hot pressing disclosed in Applicants' specification (*see for example* Applicants' specification, Examples 1-13). Therefore, the sheet of the prior art comprises a phenolic resin-impregnated sheet, wherein fire retardant capsules are included in the phenolic resin, and wherein the resulting sheet is molded by hot-pressing, which would appear to fix the fire retardant capsules in the fiber sheet. Additionally, since Applicants' specification teaches that fibers such as polyethylene fiber, polyester fiber, polyamide fiber, and polyvinyl chloride fiber have a melting point of below 180°C, it naturally flows from the teachings of the prior art that one of ordinary skill in the art would expect the fibers to additionally fix the fire retardant capsules in the fiber sheet. Since the prior art teaches a substantially similar structure and composition (a molded fiber resistant fiber sheet comprising the claimed fire retardant capsule and sulfimethylated and/or sulfomethylated phenolic resin) as the claimed invention, the fire retardant capsules appear to inherently be fixed

in the fiber sheet by the fiber having a low melting point during press molding with heating, absent evidence to the contrary.

Regarding claims 16, 17 and 23, the prior art teaches a molded article wherein the fire resistant fiber sheet is molded into a prescribed shape (Ogawa, paragraph 0040).

Regarding claim 17, the prior art does not appear to teach that the ventilation resistance of the molded article is in the range of between 0.1 and 100kPa · s/m. Although the prior art does not disclose the claimed ventilation resistance, the claimed property is deemed to be inherent to the structure in the prior art combination since the prior art combination teaches an invention with a substantially similar structure and chemical composition (a molded fiber resistant fiber sheet comprising the claimed fire retardant capsule and sulfimethylated and/or sulfomethylated phenolic resin) as the claimed invention. Products of identical structure and composition cannot have mutually exclusive properties. The burden is on the Applicants to prove otherwise. Additionally, it should be noted that the claimed ventilation resistance is a result effective variable. As the thickness and the amount of the film increases, the air permeability or air flow resistance decreases while the structure becomes more rigid and secure. Absent unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the ventilation resistance, since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In the present invention one would have been motivated to optimize the ventilation resistance in order to form a conventional molded article with the desired gas permeability, soundproofing and impact absorption properties taught by Ogawa (paragraphs 0035-0040, 0052).

Regarding claims 18, 19, 21, and 22, the prior art teaches a laminated material wherein other porous sheet(s) is (are) laminated onto one or both sides of the fire resistant fiber sheet (Ogawa paragraphs 0035-0040).

Regarding claims 19, 21 and 22, the prior art teaches that the porous sheet(s) is (are) laminated onto one or both sides of the fire resistant fiber sheet through thermoplastic resin film(s) that has (have) a thickness of between 10 and 200 μm (Ogawa, paragraph 0003).

Regarding claims 21 and 22, the prior art teaches a laminated material is molded into a prescribed shape (Ogawa, paragraph 0040).

Regarding claim 22, the prior art does not appear to teach that the ventilation resistance of the molded article is in the range of between 0.1 and 100kPa · s/m. Although the prior art does not disclose the claimed ventilation resistance, the claimed property is deemed to be inherent to the structure in the prior art combination since the prior art combination teaches an invention with a substantially similar structure and chemical composition (a molded fiber resistant fiber sheet comprising the claimed fire retardant capsule and sulfimethylated and/or sulfomethylated phenolic resin) as the claimed invention. Products of identical structure and composition cannot have mutually exclusive properties. The burden is on the Applicants to prove otherwise. Additionally, it should be noted that the claimed ventilation resistance is a result effective variable. As the thickness and the amount of the film increases, the air permeability or air flow resistance decreases while the structure becomes more rigid and secure. Absent unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the ventilation resistance, since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or

workable ranges involves only routine skill in the art. In the present invention one would have been motivated to optimize the ventilation resistance in order to form a conventional molded article with the desired gas permeability, soundproofing and impact absorption properties taught by Ogawa (paragraphs 0035-0040, 0052).

Regarding claim 23, the prior art teaches a fire resistant acoustic material for cars made of a molded article (Ogawa, paragraph 0040).

Regarding claims 24 and 26, Ogawa teaches a fire resistant fiber sheet comprising a fiber sheet which is press-molded with heating, the fiber sheet comprising a fiber sheet in which fire retardant capsules, consisting of a fire retardant powder are added, wherein the fiber sheet comprises a fiber having a low melting point of below 180°C and the fiber sheet is bound with sulfomethylated and/or sulfimethylated phenolic resin which is added to the fiber sheet in an amount of between 5 and 200% by mass relative to the mass of the fibers sheet without the capsules (see entire document including paragraphs 0001-0003, 0013-0019, 0024-0031, 0035-0040, 0052, Examples 1 and 2, Claims 1-7). It should be noted that Applicants' specification at page 6 teaches that fibers such as polyethylene fiber, polyester fiber, polyamide fiber, and polyvinyl chloride fiber have a low melting point of below 180°C.

Regarding claims 24 and 26, Ogawa does not appear to teach that the fire retardant capsules consist of a water soluble fire retardant powder covered with a water insoluble synthetic resin shell. However, Ogawa teaches the inclusion of a powder such as a fire retardant or an antiflame agent to the sulfomethylated or sulfimethylated phenolic resin (Ogawa, paragraph 0031). Since Ogawa is silent in regards to the fire retardant, it would have been necessary and therefore obvious to look to the prior art for conventional fire retardant compositions added to

molded articles. Wang provides this conventional teaching, showing that it was known in the molded article art to incorporate a thermoplastic resin-coated ammonium polyphosphate flame retardant comprising a core material encapsulated by a water insoluble resin (Wang, column 1 line 7 to column 2 line 56, column 4 line 58 to column 6 line 50, column 7 lines 23-33, column 9 lines 28-58, column 15 line 45 to column 16 line 20). Wang teaches that the core material is water-soluble or can be made hardly water-soluble. Wang teaches that the themoplastic resin-coated ammonium polyphosphate flame retardant is excellent in water resistance, resistance to organic solvents and chemical resistance, and has a high affinity for thermoplastic resins. Additionally, when incorporated into a thermosetting resin or thermoplastic resin-based molding material, the flame retardant has a high hygroscopicity-controlling effect. It would have been obvious to one of ordinary skill in the molded articles art at the time the invention was made to form the fiber sheet of Ogawa, wherein the fire retardant comprises the flame retardant, as taught by Wang, motivated by the desire of forming a conventional fiber sheet with a fire retardant known in the art to be predictably suitable for use in molded articles since the flame retardant is excellent in water resistance, resistance to organic solvents and chemical resistance, and has a high affinity for thermoplastic resins in addition to providing a high hygroscopicity-controlling effect.

Regarding claims 24 and 26, the prior art does not appear to specifically teach that the fire retardant capsules are fixed in the fiber sheet by the fiber having a low melting point during press molding with heating. However, it is reasonable for one of ordinary skill in the molded articles art to presume that the fire retardant capsules are fixed in the fiber sheet by the fiber having a low melting point during press molding with heating. Ogawa teaches that the

sulfomethylated and/or sulfimethylated phenolic resin is modified or mixed with a fire retardant. Additionally, Wang teaches that the thermoplastic resin-coated flame retardant has a high affinity for thermoplastic resins. Additionally, Ogawa teaches that the fire resistant fiber sheet and interior material is molded by hot-pressing after heating or the like, before, when or after the synthetic resin impregnated nonwoven fabric is bonded to the base material (Ogawa, paragraph 0040). Ogawa teaches that the nonwoven fabric may be attached then molded at 180°C for 60 seconds (Ogawa, Example 1) which appears to be substantially similar to the hot pressing disclosed in Applicants' specification (*see for example* Applicants' specification, Examples 1-13). Therefore, the sheet of the prior art comprises a phenolic resin-impregnated sheet, wherein fire retardant capsules are included in the phenolic resin, and wherein the resulting sheet is molded by hot-pressing, which would appear to fix the fire retardant capsules in the fiber sheet. Additionally, since Applicants' specification teaches that fibers such as polyethylene fiber, polyester fiber, polyamide fiber, and polyvinyl chloride fiber have a melting point of below 180°C, it naturally flows from the teachings of the prior art that one of ordinary skill in the art would expect the fibers to additionally fix the fire retardant capsules in the fiber sheet. Since the prior art teaches a substantially similar structure and composition (a molded fiber resistant fiber sheet comprising the claimed fire retardant capsule and sulfimethylated and/or sulfomethylated phenolic resin) as the claimed invention, the fire retardant capsules appear to inherently be fixed in the fiber sheet by the fiber having a low melting point during press molding with heating, absent evidence to the contrary.

Regarding claims 25 and 26, the prior art teaches that the water soluble fire retardant powder is selected from the group consisting of ammonium phosphate, ammonium

polyphosphate, ammonium sulfamate, ammonium sulfate and ammonium silicate (Wang, column 1 line 7 to column 2 line 56, column 4 line 58 to column 6 line 50, column 7 lines 23-33, column 9 lines 28-58, column 15 line 45 to column 16 line 20).

3. Claim 2 is rejected under 35 U.S.C. 103(a) as obvious over Ogawa in view Wang, as applied to claims 1, 16-19 and 21-26 above, and further in view of USPN 6,362,269 to Ishihata.

Regarding claim 2, the prior art does not appear to teach that the fire retardant capsules are added to the fiber sheet in an amount of between 5% and 80% by mass relative to the mass of the fiber sheet without the capsules. Since the prior art is silent with regards to the specific amount of fire retardant, it would have been necessary and thus obvious to look to the prior art for conventional add-on amounts in molded articles. Ishihata provides this conventional teaching showing that it is known in the molded articles art to form molded articles comprising an aromatic resin, fibers and flame retardant particles comprising a particle encapsulated in a resin (Ishihata, column 1 lines 5-9, column 3 lines 1-35, column 15 line 34 to column 17 line 36, column 23 line 12 to column 26 line 19). Ishihata teaches that the flame retardant particles are added to the resin, wherein the amount of flame retardant particles added to the resin are between 0.1 to 25 parts by weight (Ishihata, column 26 lines 8-20). Therefore, it would have been obvious to one of ordinary skill in the molded articles art at the time the invention was made to form the fiber sheet of the prior art, with the percentage of flame retardant particles, as taught by Ishihata, motivated by the desire of forming a conventional molded article having fire retardant particles with a percentage of particles known in the art to be suitable for use in molded articles.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa in view Wang, as applied to claims 1, 16-19 and 21-26 above, and further in view of USPN 5,188,896 to Suh.

Regarding claim 5, the prior art does not appear to teach that the fibers are hollowed or a mixture of solid and hollowed fibers. However, Suh teaches a thermal insulation comprising hollow thermoplastic fibers and polymeric fibers wherein the fibers are coated with a synthetic resin and a flame retardant (Suh, column 1 lines 13-49, column 4 line 13 to column 5 line 48, Example 3). It would have been obvious to one of ordinary skill in the fire retardant fiber art to form the fire retardant fiber sheet of the prior art, wherein the fibers comprise hollow thermoplastic fibers and polymeric fibers, as taught by Suh, motivated by the desire of forming a conventional fire retardant fiber sheet with fire resistant properties which is lightweight and provides good fire resistance, and such a combination was known and the resulting product predictable at the time the invention was made.

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa in view Wang, as applied to claims 1, 16-19 and 21-26 above, and further in view of US Pub. No. 2005/0263345 to Erickson.

Regarding claim 20, the prior art does not appear to teach that a hot melt adhesive powder is scattered onto one or both sides of the fire resistant fiber sheet in an amount of between 1 and 100 g/m^2 and the other porous material sheet(s) is (are) laminated onto the fiber sheet through the scattered layer of hot melt adhesive powder. However, Erickson teaches that it was known to form a sound absorbent material or trim panel and headliner, comprising multiple

layers of fibrous material and adhesive powder, wherein the acoustic flow resistance is in the range of about 500 to 2500 Rayls and the adhesive powder is applied as a coating at a weight of about 10 g/m^2 (Erickson, paragraphs 0002, 0003, 0008-0015, 0034-0037, 0042, 0043). It would have been obvious to one of ordinary skill in the vehicle panel art to form the molded vehicle article of the prior art, having the ventilation resistance and amount of adhesive powder adhering the porous sheet to the fiber sheet, as taught by Erickson, motivated by the desire of forming a conventional vehicle panel with desirable sound absorption properties which maintains porosity and provides acoustic absorption by minimizing reflection of sound waves.

Response to Arguments

6. Applicants' arguments with respect to claims 1, 2, 5, and 16-26 have been considered but are moot in view of the new grounds of rejection.

Conclusion

7. Applicants' amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER Y. CHOI whose telephone number is (571)272-6730. The examiner can normally be reached on Monday - Friday, 08:00 - 15:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Peter Y Choi /PYC/
Examiner, Art Unit 1794

/Andrew T Piziali/
Primary Examiner, Art Unit 1794